

GLAND PUNCTURE IN THE DIAGNOSIS OF ANIMAL TRYPANOSOMIASIS

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Acting on a suggestion made by Mott, Greig and Gray examined the juice obtained by puncture of the enlarged lymphatic glands of men suffering from trypanosomiasis in Uganda. Dutton and Todd in the Congo Free State also noted their connection with the disease, and instituted a system of census dependent upon their size. They found that 91% of natives having post-cervical glands measuring approximately 1.5 by 0.75 cm. showed trypanosomes on puncture.

Enlargement of the superficial lymphatic glands in animals, though well recognised post-mortem, has not received much attention as a symptom of trypanosomiasis. Dutton, Todd and Kinghorn* quote Bertolotti as having noted it to be a constant feature in the infected stock at Eala; and enlargement of the presternals is well known to camel owners in the Punjab, and by some at least is associated with Surra. In Rhodesia we found it to be common in all classes of animals sick and healthy, even young calves and several varieties of antelope having almost without exception easily palpable glands. As a symptom, then, it is here of little value.

During the time one of us (R. E. M.) was in India, a few observations were made as to the value of gland puncture in camels believed to be suffering from Surra, but not showing trypanosomes in the peripheral circulation. In one case a camel which did not show peripheral organisms for sixty-three consecutive days revealed them on three out of four punctures; and on another occasion when examining a herd, two additional cases were discovered by this method.

* *Annals of Tropical Medicine and Parasitology*, 1907, Vol. 1, p. 235.

Our observations on cattle suffering from *T. dimorphon* at Broken Hill* did not accord with those of Dutton and Todd on Congolese cattle. The infection in our animals, however, was acute, and trypanosomes were rarely absent from the circulation: in such cases it is unnecessary to resort to gland puncture. Our more recent observations on animals suffering from a somewhat chronic form of disease leads us to regard it as a most valuable diagnostic method. It is not only of value in chronic cases, but should animal inoculation have been carried out, a positive examination may be obtained some days prior to the appearance of trypanosomes in the blood. We may quote the following cases:—

A goat inoculated with a cattle strain of *T. dimorphon* showed trypanosomes on gland puncture from the ninth day: they only appeared in the blood (1 in $\frac{1}{4}$ cover-glass) on the fourteenth.

A dog inoculated with the same strain never showed peripheral trypanosomes up to death on the thirty-fifth day. Gland puncture on the tenth and nineteenth days was positive.

An ox inoculated with a trypanosome allied to *T. brucei* showed organisms in the prescapular glands two days prior to their appearance in the blood.

An ox inoculated with a trypanosome of doubtful nature (Ninamwenda strain) showed organisms in the gland three days before they were seen in the blood.

A dog inoculated with a dog strain of tadpole trypanosomes showed organisms on gland puncture eleven days previous to their being seen in the blood.

Infections of the goat due to *T. brucei* and *T. pccaudi* are known to be easily overlooked, unless means of sub-inoculation are at hand. The following cases are instances of the advantages of puncture:—

A goat inoculated with a form allied to *T. brucei*, which was under observation for six weeks, only showed trypanosomes on two occasions. They were present on each of five gland punctures when not seen in the blood.

A goat inoculated with the same strain did not show blood trypanosomes during the fortnight available for observation. Gland puncture showed them present from the seventh day.

It is, of course, hardly to be expected that success is invariable. In animals known to be infected we have often been unable to detect their presence on puncture; but the advantages of even one positive case fully compensate for the small amount of labour involved in adopting this method as a routine for all suspected animals not showing peripheral trypanosomes.

The advantages in practice may be judged by the fact that in three localities fifteen cases were diagnosed on blood examination, and four additional ones on puncture; whilst at another place,

* Annals of Tropical Medicine and Parasitology, 1908, Vol. 2, p. 106.

considered to be free of disease, it was by gland puncture alone that its existence was demonstrated.

We are indebted to Mr. Lane, the Veterinary Officer of North Eastern Rhodesia, for the following summary of results since adopting this method of diagnosis. The trypanosome with which he had chiefly to do is, in animal reaction and morphology, related to *T. nanum*. On one Station four cases were diagnosed by gland puncture: in no instance were trypanosomes seen in the blood. On a second Station, in five cases the gland juice was positive, while only two showed organisms in the blood.